

## Notice of Allowability

**Application No.**

10/783,331

**Examiner**

Ling-Siu Choi

**Applicant(s)**

BLACKMON ET AL.

**Art Unit**

1713

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 06/01/2005.
2. ☒ The allowed claim(s) is/are 3-21.
3. ☒ The drawings filed on 20 February 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

- |   |   |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                       |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance              |
|   | 9. <input type="checkbox"/> Other _____.  |

### **DETAILED ACTION**

1. This Office Action is in response to the Amendment filed June 1, 2005. Claims 1 was canceled and claims 20-21 have been added. Claims 2-21 are now pending.

#### ***Examiner's Amendment***

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CAR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ms Tenley R. Krueger on June 16, 2005.

3. The application has been amended as follows:

Cancel claim 2;

Claim 3, line 1, change "claim 2 wherein said Ziegler-Natta catalyst has a titanium content of at least 1.8 wt%" to --claim 20 wherein said Ziegler-Natta catalyst has a titanium content in amount of from 1.8 wt% to 2.2 wt%--;

Claim 12, line 1, change "In a process" to --A method--;

Claim 12, line 6, change "within the range of 1.7-2.2 wt%" to --of from 1.7 wt% to 2.2 wt%--;

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Claim 13, line 2, change "of at least 1.8 wt%" to --of from 1.8 wt% to 2.2 wt%--;

Claim 20, line 1, change "In the production of" to --A method to produce--;

Claim 21, line 1, change "In the production of" to --A method to produce--.

***Allowable Subject Matter***

4. Claims 3-21 are allowed.

5. The following is an examiner's statement of reasons for allowance:

The present claims are allowable over the closest references: Blackmon et al. (US 6,657,025 B2).

A method to prepare a stereo regular polypropylene	
a	supplying propylene to a reactor
b	incorporating into the propylene monomer stream a titanium-based supported Ziegler-Natta catalyst having an internal electron donor wherein a titanium content is from 1.7 to 2.2 wt%
c	supplying to the propylene monomer stream a cocatalyst comprising trialkylaluminum wherein molar ratio of aluminum/titanium is in the range of 50-500
d	supplying to the propylene monomer stream a silicon-based external electron donor wherein the molar ratio of aluminum/silicon is in the range of 10-500
e	recovering polymer fluff which has a melt flow rate $\geq 200$ gm/10 min and a xylene soluble $\leq 4$ wt%

(summary of claim 20)

Blackmon et al. disclose a method to prepare polypropylene, the method comprising polymerizing propylene in the presence of a Ziegler-Natta catalyst component, an organoaluminum (TEAL), an external donor (CMDS, CPDS, or DIDS), and hydrogen, wherein the Ziegler-Natta catalyst component comprises a titanium compound, a magnesium compound, and diether internal donor (abstract; Examples 1-5; claim 1). Blackmon et al. further disclose that the internal donor can be a combination of diether and phthalate (col. 4, lines 53-67; col. 6, lines 54-67). Blackmon et al. furthermore disclose that the Ziegler-Natta catalyst component contains approximately **2.3 wt% titanium** (col. 5, line 1); the molar ratio of Al / Ti is 172.41 (Table 1 - Al / Ti =  $1.0 \text{ mmol} / [(10 \text{ mg} \times 2.8\%) / 47.867]$ ); the molar ratio of Al / Si is 10 or 50 (Table 1); hydrogen levels is varied from 0.09 to 0.45 mol% (col. 6, lines 64-65). Blackmon et al. furthermore disclose the polypropylene has a melt flow of at least about 300 g/10 min and a xylene solubles of not more than about 3.5 wt% (claim 1). However, with referring to claims 3-20, Blackmon et al. do not teach or fairly suggest a method to produce a stereo regular propylene polymer in the presence of a Ziegler catalyst comprising **titanium in an amount of from 1.7-2.2 wt%**.

A method to prepare a stereo regular polypropylene	
a	supplying propylene to a reactor
b	incorporating into the propylene monomer stream a titanium-based supported Ziegler-Natta catalyst having an internal electron donor <b>consisting essentially of a phthalate compound</b> and a titanium content at least from 1.7 wt%
c	supplying to the propylene monomer stream a cocatalyst comprising trialkylaluminum wherein molar ratio of aluminum/titanium is in the range of 50-500

d	supplying to the propylene monomer stream a silicon-based external electron donor wherein the molar ratio of aluminum/silicon is in the range of 10-500
e	recovering polymer fluff which has a melt flow rate $\geq 200$ gm/10 min and a xylene soluble $\leq 4$ wt%

(summary of claim 21)

Blackmon et al. disclose a method to prepare polypropylene, the method comprising polymerizing propylene in the presence of a Ziegler-Natta catalyst component, an organoaluminum (TEAL), an external donor (CMDS, CPDS, or DIDS), and hydrogen, wherein the Ziegler-Natta catalyst component comprises a titanium compound, a magnesium compound, and **diether internal donor** (abstract; Examples 1-5; claim 1). Blackmon et al. further disclose that **the internal donor can be a combination of diether and phthalate** (col. 4, lines 53-67; col. 6, lines 54-67). Blackmon et al. furthermore disclose that the Ziegler-Natta catalyst component contains approximately 2.3 wt% titanium (col. 5, line 1); the molar ratio of Al / Ti is 172.41 (Table 1 -  $\text{Al} / \text{Ti} = 1.0 \text{ mmol} / [(10 \text{ mg} \times 2.8\%) / 47.867]$ ); the molar ratio of Al / Si is 10 or 50 (Table 1); hydrogen levels is varied from 0.09 to 0.45 mol% (col. 6, lines 64-65). Blackmon et al. furthermore disclose the polypropylene has a melt flow of at least about 300 g/10 min and a xylene solubles of not more than about 3.5 wt% (claim 1). With referring to claim 21, Blackmon et al. do not teach or fairly suggest a method to produce a stereo regular propylene polymer in the presence of a Ziegler catalyst **consisting essentially of phthalate compound**.

In light of the above discussion, it is evident as to why the present claims are patentable over the prior art.

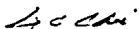
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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments"

***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on 571-272-1114.



**LING-SUI CHOI  
PRIMARY EXAMINER**

June 15, 2005